

CLAIMS:

1. An optical scanning device for scanning tracks of an optical record carrier using a radiation beam, the device including:

an optical head, defining an optical axis, for converging the radiation beam to a spot when scanning the record carrier; and

5 a rotary arm for moving the optical head across the record carrier, characterized in that the device further comprises an optical arrangement for generating satellite beams for performing multi-spot tracking, and in that the optical arrangement is arranged to move the satellite beams, relative to said optical axis of the optical head, in correspondence with rotation of the rotary arm.

10

2. An optical scanning device according to claim 1, wherein the optical arrangement is arranged to rotate the satellite beams, relative to said optical axis of the optical head, in correspondence with rotation of the rotary arm.

15 3. An optical scanning device according to claim 1 or 2, wherein the optical arrangement comprises means for generating the satellite beams, and said means are rotatable to provide said movement of the satellite beams.

4. An optical scanning device according to claim 3, wherein said means comprise 20 a diffraction grating.

5. An optical scanning device according to any preceding claim, wherein said device comprises a radiation source mounted separately from said rotary arm.

25 6. An optical scanning device according to any preceding claim, wherein said device comprises a detector array comprising satellite detector elements arranged to detect satellite detector spots in a range of rotational positions about a main detector spot.

7. An optical scanning device according to claim 6, wherein said satellite detector elements comprise two elements separated by a separation line which is generally aligned with a direction of movement of the satellite detector spots when the rotary arm is rotated.

5

8. An optical scanning device according to claim 6 or 7, wherein said device comprises spot-size type or Foucault type optical element associated with said detector array.

9. An optical scanning device according to any preceding claim, wherein the
10 optical arrangement is arranged to move the satellite beams between a first positioning, in a first rotary position of the arm and a second positioning, in a second rotary position of the arm, so as to take into account rotary movement of the arm relative to the record carrier.

10. An optical scanning device according to any preceding claim, wherein the
15 record carrier is in the form of an optical disc and the optical arrangement is arranged to move the satellite beams between a first positioning, in a first rotary position of the arm and a second positioning, in a second rotary position of the arm, so as to take into account angular separation of the tracks, relative to each other, at the optical head in the first and second positions of the rotary arm.

20

11. An optical scanning device according to any preceding claim, wherein the optical arrangement is arranged to position satellite beam spots on the record carrier along a line which is substantially perpendicular to the direction of the tracks.